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An  
Historical Sketch  
of  
The Conceptions of Memory  
among the Ancients.

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Memory.

## I.

Mnemosyne, Hesiod  
tells us, was the mother of the Muses.

Without speculating as some have done  
about the reasons for this myth it  
is interesting as showing our appre-  
ciation of the fundamental nature of  
memory and some sort of crude  
introspective psychology dating back  
possibly to pre-historic times.

Before the art of writing  
was in common use men had to  
depend more largely than to-day upon  
their memories for preserving and  
transmitting their knowledge. It  
is not surprising then that the





ancients put a high estimate upon memory upon the reason to be right about its nature. 'There are, if' some allusion to memory in Homer and in the Hebrew Scriptures.\*

and occasionally one of the early Greek philosophers tries to explain some phenomenon of memory. But we find no scientific study of the subject before Aristotle.

The psychology of the Ionian school of philosophers, as far as they can be said to have had any at all, was sensationalism. Their views of memory must be conjectured from the fundamental principles of their philosophy.

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\* For sciences see same: Geschichte der Psychologie, p. 150 & 169.



The doctrine of transmigration as held in the Pythagoreans is an anticipation of Plato's doctrine of reincarnation and there is little philosophy in it. The character told us that 'Diogenes of Apollonia was puzzled by the phenomenon of forgetting things.\* But explained it in accord-  
 and with the principles of his philosophy by supposing that the cause of forgetting was an arrest of the local distributions of air throughout the body. A corroboration of this explanation he found in the easier recollection that follows the awakening of what was forgotten.

Among the Eleatics, Parmenides is reported to have said that not

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\* *Memorabilia* 1.1





only thought out collecting and not  
getting depended upon the way the  
'light or heat and the dark' or cold  
are mixed in the body. If we may  
trust Theophrastus,\* it may be as-  
sumed that, according to Parmeni-  
des, every presentation corresponded  
to a definite mixture or relation  
of these qualities, and with the  
destruction of that relation the  
presentation disappeared, that is, was  
forgotten.

Theophrastus was a most careful and  
studious man, memory careful, but in the  
elements of his philosophy that have  
come down to us nothing is said  
about the subject.

In Plato we find a more

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\* Theophrastus *de Sensibus*, p. 111. Theophrastus  
de Sensibus, p. 111. Theophrastus, p. 111.



modern psychology. according to him  
the thinking power of the mind the  
understanding, is above the mere  
senses of sense, perception. It is this  
power which compares and con-  
siders, notes similarities and con-  
trasts, unity and plurality, and forms  
ideas of relation between Being and  
Non-Being as well as relations of num-  
ber and proportion. Among the ele-  
ments of this power, recollections  
(ἀνάμνησις) is of prime importance.  
This rests upon the association by  
similarity and immutability.\*

Plato distinguishes the passive re-  
ception (παθητικὴ) of recollections from  
active memory (ἐπιστήμη) \*\* and

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\* Aristotle 73.

\*\* Philochar, 34.





suggests as a definition of memory,  
 "the power which the soul has of re-  
 covering, when by itself, some feeling  
 which it experienced when in con-  
 tact with the body." He attempts  
 no explanation of memory ~~of memory~~  
~~but~~ in the *Phaedrus* sets the  
 following words into the mouth of  
 Socrates:

"I would have you inquire,  
 then, that there exists, in the mind  
 of man a block of wax, which is  
 of different sizes, in different men;  
 harder or softer and having more  
 or less of purity, in one than in  
 another, and in some of an inter-  
 mediate quality. .... Let us say  
 that this tablet is a gift of Mem-  
 ory, the mother of the Muses, and  
 that when one wish to remember



anything which we have seen or heard, or thought in our own minds we hold the 'wax to the perceptions and thoughts and in that receive the impressions from them as from the seal of a ring; and that 'we remember and know what is imprinted as long as the image lasts; but when the image is effaced, or cannot be taken, then we forget and do not know."

Plato carries out the same figure to explain different degrees of memory. "When the wax in our soul is deep, abundant, smooth, and of the right quality, the impressions are lasting. Such minds can easily retain and are not liable to confusion. But, on the other hand, when the wax is very soft, we learn





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easily and inserts as easily; if the  
wax is hard, the reverse is true;  
again if the wax is hard or impure,  
the impressions are indistinct; and  
still more indistinct are they when  
jostled together in a sister "soul." \*

This illustration must  
not be taken too seriously; our enter-  
er in the same dialogue "Socrates  
calls it a "wax tablet" and  
indicates on it the names of the  
birds of all kinds of birds - "some  
gathering together apart from the rest,  
others in small groups, others soci-  
tary, others any where and any how."

The "tablet" is empty when we  
are young. The birds are kinds of  
knowledge. Learning is the process

---

\* Socrates' illustration.



capturing the birds and determining them in this process. In acts of memory we recollect them and take them out of the wings.

Plato views upon memory have a special interest on account of their connection with his metaphysical doctrines. Perception and recollection are the occasion of the mind's turning away from the world of sense to the inner world of innate and universal ideas. These ideas we could never get from sense-perception. That gives us only the immediate and the individual. The ideas are of the essential and the universal. We could not conceive them if we did not already know them. Hence the power to know the universal in the individual proves a previous



existence in which we find the intuitions of universal truth, and accordingly, learning is not recollection.\* The historical aspects of memory, however, set us vivid before us as much as possible. They would lead far from a psychological study. But this doctrine of recollection lies at the heart of the Platonic philosophy, and it is necessary to note carefully the distinction between this and ordinary memory. The latter, as defined by Plato in the passage quoted above is the memory or recollection of what has been learned through the body, that is,

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\* For references see Zeller's *Plato and The Older Academy*, pp. 126 and 407. Cf. also Siebeck: *Lehrbuch der Psychologie*.



things of sense, since the world of appearances, and is liable to many errors. The former, on the other hand, is not concerned with things of sense. It is perception of that higher world where we had an intellectual vision of intelligible realities. Its highest manifestation is the insight of the philosopher who sees the divine goodness, truth, and beauty.\*

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\* For the many passages in which the words  $\mu\upsilon\sigma\eta\sigma\iota\varsigma$ ,  $\mu\upsilon\sigma\eta\sigma\iota\sigma\tau\eta\varsigma$  appear, see in Plato, see det. *Lexicon Platonicum*, II. pp. 350-357.  
 For  $\alpha\lambda\alpha\mu\upsilon\mu\eta\tau\eta\varsigma$  and  $\alpha\lambda\alpha\mu\upsilon\tau\eta\varsigma$  cf. the same, vol. I, pp. 151-152.





## II

The difference in philosophical method between Plato and Aristotle is well illustrated by their treatment of memory. What Plato says of memory is incidental to the discussion of such profound matters as the nature of the soul and the theory of knowledge. Memory, according to him, is one of the highest faculties and partakes of the eternal nature of the soul. Aristotle makes a special study of memory in a less transcendental way. With him it is no longer a function of the eternal Noûs; but it has its seat in the passive Reason, is dependent upon a physiological



process, and perishes with the body.

Aristotle seems to have been the first of ancient philosophers to write a systematic treatise on psychology. But, rather curiously, in this work on psychology there is no special treatment of memory. A special tract, however, was devoted to the subject. \* This, as far as we know, was the first scientific study of memory; and for this reason, as well as for its intrinsic merits, the tract deserves special attention. But before passing to his doctrine of memory, it is well to notice briefly his the-

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\* De Memoria et Reminiscencia. For a list of commentaries, see Hamilton's edition of Reid's Works, p. 891.



on of sense-perception. On occasion  
 of appropriate stimuli movements  
 take place in the sense-organs. These  
 movements, however, are not sense  
 perception. In perception the mind  
 must compare and distinguish dis-  
 tinct sensations; it must unite  
 the sensations presented simulta-  
 neously by our double sense organs  
 of sight and hearing and it  
 must be conscious of sensation.  
 This work of comparison, of psy-  
 chic synthesis, and of self-conscious  
 perception is performed by a cen-  
 tral sense. The physical basis of  
 this sense is the heart. Through  
 it the mind performs the act of  
 sense-perception. The functions as-  
 cribed to nervous substances are  
 referred by Aristotle to the pneuma





connected with the heart. This is the medium by which the movements arising in the sense organs are transmitted to the heart, and in this pneuma the movements persist long after the external stimuli have ceased to act. Incidentally it is interesting to note, that according to Aristotle's psychology, the brain has over little to do with mental activity. To borrow a phrase from Wallace 'it serves simply as "a cooling apparatus to counteract the excessive warmth of the heart." When the movement occasioned in the sense organs by an external stimulus is propagated to the heart,\* it

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\* Touch and Taste according to A. reside in the heart. Sight, Sound, and Smell in the brain, but they are indirectly connected with the heart.



becomes a reception of the soul. Such  
receptions, then, is an act of the  
soul by means of a physiological pro-  
cess. In the words of Aristotle it is  
"a movement of the soul through  
the body." \* How this movement  
sometimes continues after the  
stimulus, which was the occasion  
of it, has ceased to act. The extreme  
case is the well known pheno-  
menon of a visual after-image. The  
images of the imagination are  
such after-sensations. Imagination  
is weak sensation, or in the words  
of Hobbes, "decaying sense". So too,

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\* De Somno. I. 454.

ἡ δὲ λεγόμενη αἰσθησις ὡς ἐνέ-  
ργεια κίνησις τις διὰ τοῦ σώματος  
τῆς ψυχῆς ἐστίν.



dreaming is the result of a movement in our bodily organs, caused either from without or from within. Again, these persistent movements are the elements of memory.

At first, one wonders how Aristotle will distinguish those movements which constitute memory from those which are the basis of imagination. He is not entirely satisfactory on this point; but he makes the following distinction.

The picture of the imagination, or the corresponding movement does not refer to an external object, and is not located in the past. The memory picture, on the other hand, does refer to an object and carries with it the consciousness of a



time in the past when the perception ~~permanently~~ took place.\* Memory then involves time, and with this and the sense of time are dependent upon the central sense.

Memory, as we have seen, is dependent upon the residua of sensations. The subjective side of a sensation is an image. This corresponds to the same part of the soul as the imagination, and the proper objects are images ( $\phi\alpha\rho\tau\alpha\rho\tau\acute{\alpha}$ ). The image is a 'condition' ( $\alpha\rho\alpha\iota\sigma\iota$ ) of the central sense. Memory per se is of the original image or perception, and only in an accidental manner does it

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\* See Wallace; Aristotle's Psychology, Introduction, pp. 18-19.





relate to matters of Thought. \*

In his "Meteorology" Aristotle in part repeats Plato's views, in part discusses the obvious facts of meteorology, which, having been continually repeated since his time, have become more statistics, and in part he tries to explain the phenomena of weather in accordance with his general system of psychology. The essay, however, is of special interest, because in it Aristotle sets forth very clearly the famous doctrine of association of ideas. Some of

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\* In other words, abstract ideas and the like are reproducible only so far as they imply images.



the two points in the treatise  
 are briefly mentioned and  
 special consideration given to  
 the points relating to recollec-  
 tion and association. & Thus Ar-  
 istotle takes considerable space  
 to show what would seem to  
 be apparent enough to every-  
 body, that memory is of the past,  
 perception is of the present,  
 and hope and opinion of the fu-  
 ture.

The central sense or sen-  
 sorium must be in a condition  
 suitable to receive and retain  
 impressions. If the sensorium  
 is too hard, no impression  
 is made. If it is greatly agita-  
 ted, the new movement is in-  
 effectual: for somewhat the



same principles. The young animals, as we say in modern physiology, that a weak stimulus is brushed out by a strong one, hence the very young and the very old have poor memories; for the former are in the pre-eminence of growth, the latter in that of decay. Again, the question arises: how is it that in recollection we recognize the memory-image as a picture - the absent object? A scholastic answer is given. "An animal painted in a picture, he says, is both an animal and a copy, and while being thus one and the same, it is nevertheless two times at once. The animal and the copy are not identical, and we may think





of the picture either as original  
 or as a representation. There is  
 also true of the image within  
 us; and the idea which the  
 mind contemplates is something,  
 although it is also the image of  
 something else." \*

The second chapter of the  
 treatise on memory is devoted  
 chiefly to recollection and the as-  
 sociation of ideas. Aristotle dis-  
 tinguishes carefully ~~between~~ the  
 mere persistence and destruction  
 of a presentation (perception) from vol-  
 untary recollection (anagnorisis). The  
 latter is indirect reproduction.

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\* Quoted from E. & Louisa Ward in In-  
 troduction, p. 257.



It is possible only by the association of ideas. The former is an attribute of animals, which the latter is peculiar to man. Recollection occurs according to the sequence of ideas.\* What and how necessary the sequence shall be depends upon our past experience.

\* Συμβαίνει δ' αὖ ἀναμνήσεις, ἐπειδὴ πέφυκε ἡ ψυχὴ τὰς ἐκείνων μετὰ τῶν αὐτῶν.

This passage is obscure, but it is generally understood to refer to the sequence of motions or the connecting ideas and the association goes with the context. See Hamilton's Edition of Reid, pp. 892-893, and Themistius' paraphrase of De Memoria, quoted by Hamilton p. 893-894; also Cicero's *De Memoria*, p. 77; Aristotle's *De Memoria*, p. 77; Aristotle's *De Memoria*, p. 77; Aristotle's *De Memoria*, p. 77; Aristotle's *De Memoria*, p. 77.



"If the sequence be necessary, the  
first continues, 'then when this move-  
ment occurs, that one will follow.  
& if it is not necessary but a mat-  
ter of habit, the later movement  
will generally follow." Sir Wm.  
Hamilton understands the word trun-  
cated movement, always to mean  
mere change in quality. The  
word, then, 'he thinks may be fair-  
ly translated into modern psy-  
chological by his famous term  
modification. One hesitates to  
entirely such a profound philo-  
sophic and such a diligent student  
of Aristotle as Sir Wm. Hamilton.  
But in the light of what has been  
said it seems much simpler  
and more in accordance with  
the psychology of Aristotle to un-



derstand his doctrine of recollection as follows: The physiological movements originally connected with a series of perceptions must occur again in the same order when we recall a true memory-picture.\* Man is so constituted that when one movement and the mental image connected with it occur, another movement with its appropriate mental image is likely to follow. When we would recall anything there we must call up idea after idea until we arrive at one upon which the one we are in search of has often been sequent in our experience.

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\* Cf. Sigmund. Geschichte der Psychologie. 4. Aufl. 1897. p. 77.





in terms of psychology, movement  
after movement must occur un-  
til we arrive at a movement of  
on which the movement consequent  
ing to the idea desired has often  
been sequent.

This process or associa-  
tion of ideas is subject to cer-  
tain laws. The remarkable pas-  
sage in which Aristotle states  
'These laws is translated by Sir.  
W. Hamilton as follows:

"In Europe we accomplish  
an act of Reminiscence we pass  
through a certain series of pre-  
cursive movements until we  
arrive at a movement, on which  
the one we are in quest of is  
habitually consequent. Hence too  
it is that the hunt-through



the mental train, excoagulating [what we need] from [its concomitant  
 act] the present or some other time  
 and from its similar or contrast-  
ing or opposite. Through this  
 process 'Reminiscence' is ef-  
 fected. For the movements,  
 '[which and by which we recollect]'  
 are, in these [cases, and some-  
 times the same, sometimes at  
the same time, sometimes parts  
of the same whole: — but [hav-  
 ing obtained from one or the other  
 of these a commencement], the  
 subsequent movement is almost  
 more than half accomplished." \*

\* The Greek is as follows:

διὸ καὶ τὸ ἐφεξῆς ἁπλῶς ἐύορμεν νόη-  
 σαντες ἀπὸ τοῦ νῦν ἢ ἀλλοιῶτερός



Malin quotes the same passage in the introduction to his *Psychology of Aristotle*,\* and gives the following somewhat different and probably more accurate translation:-

"When engaged in recollection we seek to recall some of our previous movements until we come to that which the movement or impression of which we are in search was wont to

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καὶ ἀφ' ὁμοίου, ἢ ἀναντίου, ἢ τοῦ  
 ἐναντίου διὰ τοῦτο γίνεται ἡ ἀν-  
 ἀμνηστis. αἱ γὰρ κινήσεις τούτων τῶν  
 μὲν αἱ αὐταί, τῶν δ' ἄλλα, τῶν δὲ μέρος  
 ἔχουσιν ὥστε τὸ λοιπὸν μικρὸν δ'  
 ἐκινήθη μετ' ἐκείνου.

\* p. 95



follow. And hence we seek to reach this preceding impression by starting in our thought from an object present to us "or something else whether it is similar, contrary, or contiguous to that of which we are in search; recollection taking place in this manner because the movements are in one case identical, in another case coincident and in the last case partly overlap."\*

Whichever translation we adopt it seems plain enough that Aristotle maintained that voluntary recollection depended upon the laws of association by

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\* See also  
 \* Grote, Grant, Siebekh and Zeller: *op. cit.*





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similarity, contrast or contrariety  
and contiguity. Very likely he  
meant to include simultaneity  
and sequence; but any proof of  
this should rest upon the gen-  
eral import of the passage rather  
than upon any doubtful cumu-  
lation like Hamilton's. \*

A more important ques-  
tion is whether Aristotle meant  
to limit the application of these  
laws to voluntary collection  
(ἀναμνηστικῶς), or whether he in-  
tended to include spontaneous  
reproduction (μνηστικῶς) as well.

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\* Hamilton's cumulation is as follows:

After ἡ ἔλδος τοῦ in the passage ci-  
ted he would supply χρόνον or καί-  
πος.



5

The opinion commonly held by students of Aristotle, from Chemistinus down, has been that he applied the law of association only to voluntary recollection. Hamilton, however, argues forcibly that Aristotle taught the universality of the law of association.

It seems natural enough to suppose that one who saw so clearly that in the voluntary train of thought the sequence conformed to the law of association, would have seen that the same laws apply to the spontaneous activity of the mind. But while Aristotle states the law of association clearly for the former, he at



joint pencil alludes to the latter, and blackened enough at that. Later in the same treatise Aristotle gives an illustration that 'may serve to elucidate the principles of association that have just been stated. In recollection there are certain movements which serve as standpoints or clues.

With suggests whiteness, whiteness the clear atmosphere, this the rainy season. So to the existence in commenting upon the passage quoted above, sees an illustration somewhat similar. "I see a painted eye and moved by this, as the prior and leading image. I have the reminiscence of



a real error; this suggests the  
conclusion, and the conclusion  
 the song I heard him play!\*

Again, Aristotle uses an illustration somewhat as follows:

Let A. B. C. D. E. F. G. H. represent a  
 series of ideas, one of which  
 we wish to recall. From D. C.,  
 as a starting point we may  
 be moved forward to E. or  
 backward to D., — the associa-  
 tion of ideas. If, then, on the  
 suggestion of D. C., we do not  
 find what we would recall,  
 we may find it by running  
 over the series E...F...H; if not,  
 we shall at any rate find the

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\* Quoted — Hamilton in his edition  
 of Reid's Works, p. 911.





Serial idea by running over  
 the series backward from D to A.  
 Not much stress, however, should  
 be put upon this last illustra-  
 tion; for the text is so obscure  
 that several different interpreta-  
 tions have been given by  
 commentators. Perhaps Aristotle  
 meant to illustrate something  
 more profound than the mere  
 workings of presentations in  
 a series, and the process of  
 recollecting the mental train.  
 But the illustration of such  
 a simple matter as this was  
 not unimportant in the first  
 scientific study of memory.

The place of memory  
 in the Aristotelian psychology  
 in relation to the soul



psychic activities is plain from what has been said. The 'recollection' of ~~memory~~ is involuntary recollection, & the higher activity of the Nous is indicated by Aristotle when he says that recollection is a syllogistic process. Thus it is 'that, while many animals have the lower kind of ~~memory~~, man alone has the higher form. "The reason is," says Aristotle, that Reminiscence is, as it were, a kind of syllogism, or mental discourse. For he who is reminiscient, that he has formerly seen or heard, or otherwise perceived, anything virtually performs an act of syllogism" \* Aristotle

\* Hamilton's translation. *Elements of Metaphysics*. Vol. II. p. 919.



the higher functions of the soul are based upon the lower.

"Without sensation, there is no sense; without sense there is nophantasy; without phantasy there is no excitation or intelligence." \* The place of memory among the soul's functions is, with the phantasy or imagination, mediate between sensation and intelligence.

In connection with Aristotle's <sup>definition</sup> recollection the passage in his psychology is interesting, although its importance has, perhaps, been exaggerated.

"Recollection", he says, "starts from the soul and terminates

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\* Quote of Aristotle.



in the movements or impressions which are stored up in the organs of sense." \* Siebeck interprets this passage as meaning that the soul has the power by means of the heart to effect a sort of efficient movement towards the sense organs and thus to arouse anew the persisting residua of former sensations. Recollection then with Aristotle as in modern psychology is an excitation of the sense organs, reproduced in a less degree; and the same organs are excited and the same movements repeated as in the original sensation. \*\* This pres-

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\* Wallace: *Aristotle's Psychology*, p. 41.

\*\* Siebeck: *op. cit.*, pp. 78-79.





age is certainly a remarkable anticipation of Bain's famous doctrine that "a reproduced impression 'occupies the very same parts and in the same manner' as the original impression." \*

In the foregoing sketch of Aristotle's view of memory the attempt has been made to give only what can fairly be found in Aristotle's text. Much of his tract upon memory is obscure. Commentators have held very conflicting opinions as regards to the importance of what he wrote upon association and recollection. Sir W. Hamilton

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\* Bain: Senses and Intellect, p. 338. 3d ed.



calls him "the founder and father  
of the Theory of Association,"  
looks upon the commentators as  
unreasonably stupid in their in-  
terpretations, and deems it a proof  
of Aristotle's genius that it took  
the world 2000 years to become  
intelligent enough to understand  
him. Indeed in reading Ham-  
ilton's erudite discussion one  
may be lead almost to believe  
that Aristotle was the great Scottish  
philosopher. But while Hamilton's  
Scottish apprehension probably found  
too much in Aristotle's treatise,  
and while, on the other hand,  
Lewes may be right in say-  
ing that "here as in so many  
other cases, modern knowledge  
supplies the telescope which is



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senses", nevertheless Aristotle's doctrine of association was a valuable contribution to science. And it is manifestly unfair to charge him with ignorance of its importance, because he did not spin out as many volumes upon the subject as the English associationists have done.\*

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\* For passages where the words *πρῶτον*, *ἀνὰ πρῶτον*, etc., occur in Aristotle see the Index in the Berlin edition of Aristotle's works, vol. V. In addition to the works cited see also Waddington - Rostus; *De la psychologie d'Aristote*, Chap. VIII.



### III

The Stoics took  
Plato's figure of the wax almost  
literally. They held that the  
mind is originally a tabula  
rasa. Sensations are the first  
writing upon this tablet. The ob-  
ject of sensation makes an  
impression upon the perceiving  
subject, as the seal impresses  
the wax. Memory depends up-  
on this impression. This was  
the view of Zeno. Chrysippus  
found difficulties in such a  
crude materialistic theory. How  
could the mind receive and re-  
tain at the same time a  
number of different and partly





incompatible impressions? accordingly he replaced this view by the theory that the sense impression consists in "qualitative change" (ἀλλοίωσις) of the passively 'receiving organ, the soul.\* The 'presentation' (παρταρία) is a state of the soul. The relation of man to the general theory of knowledge with the Stoics was brief as follows:- The lowest act of the soul is mere perception (αἴσθησις); the next is presentation (παρταρία), which adds conscious observation, its function being

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\*For reference see Siebeck's Geschichte der Psychologie, p. 209. See also Rubincov, History of Philosophy, Vol. I. p. 143.



to make a first test of the  
truth of the material furnished  
by sense. If perception has  
afforded a true picture of the  
external object, this reflecting  
activity of the mind becomes  
so intensive that the under-  
standing is brought into ac-  
tion. The understanding or judg-  
ment approves or disapproves  
the presentations. If it approves,  
there arises the empirical fact,  
which bears upon it the mark  
of truth. These facts memory  
stores up. By combination of  
the separate facts empirical con-  
cepts are formed which make up the  
treasure of memory or experience.\*

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\* E. Stein: Die Erkenntnistheorie der



The psychology of Epicurus and the other atomists was a simple kind of mechanical sensationalism. Idola or images from external objects enter the soul through the sense organs. The mind stores up a great multitude of these idola. Whenever we call up a picture of memory or of the imagination we turn the attention to one of these images. Thus the mind sees in the same way that the eye does, with this difference, that it perceives much thinner idola. \*

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Stoa: Zeller, Stoics, Epicureans, and Sceptics:  
and Neoplatonism: Hist. of Philos. loc. cit.

\* Stoicism II. 75 seq.



25  
Sicero and Quintilian  
both dwell upon the importance  
of memory; and both seem to  
adopt the common term of the  
time, that impressions are  
stamped on the mind as the  
pigments are marked on wax.

They are especially concerned,  
however, with principles relating  
to the exercise of memory; and  
they give instructions for me-  
morphic aids in oratory. Cicero  
lays special stress upon order  
as an aid to memory; and as  
sight is the most acute of the  
senses, those things are best-  
remembered which are visual-  
ized by the imagination. In  
accordance with the ancient  
mnemonic systems he would





have these imagined forms lo-  
calized. The advice of Quintili-  
an in respect to memory is  
especially sensible. According to  
him nothing can take the place  
of exercise and labor. Next in  
importance is the division and  
arrangement of one's subject. He  
mentions also the importance of  
good health; and says that for  
slow minds an interval of  
rest is a good thing though he  
seems to be uncertain whether the  
advantage is due to the rest  
or whether it gives convenience  
time to mature.\*

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\* Cicero, De Oratore, II. 86. seq.  
Quintilian, Institut. orat. VI. 2. seq.



## II

The Neo-Platonic psychology of memory is represented in Plotinus.\* He discusses the subject at considerable length, and presents a somewhat original doctrine. Memory does not belong to God nor to the divine immutable intelligence in man, which knows in direct intellectual perception. It is a function of the soul and first appears when the world soul is individualized in bodies. Memory, however, has no basis in the physical organ-

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\* cf. *en.* II. I. II. c. XIV. III and I VI



ism, nor does the soul impress  
 the sensations upon the body.  
 The effects of sensations are  
 not like impressions made  
 by a seal, nor are they reactions  
 (ἀνταποδοσεις), or configurations  
 (τοπιώσεις), but in percep-  
 tion as in thought the soul is  
 active. In memory, too, the  
 soul is active, not passive.  
 The influence of the body proves  
 nothing against this. The change-  
 able nature of the body may  
 cause us to forget, but it can-  
 not condition positive recollec-  
 tion. The body is the river of  
 Lethe, but memory belongs to the  
 soul. The part of the soul to  
 which memory belongs is the  
 image-forming principle.



holds sense impressions as well as Thought. Two souls, the higher and the lower, are concerned in memory. When the soul leaves the body the recollections of the lower soul are ~~soon forgotten~~ in proportion as the higher soul rises toward the intelligible world.\*

St. Augustine developed the views of the Neo-Platonists in regard to memory. With him memory is a faculty of animals, men and angels. God, whose immutable essence is above the sphere of movement and change, does not remember.

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\* Cf. Simmel: Geschichte der Psychologie, II. p. 314 seq.





57  
Everything is seen by him in  
and indivisible and unchange-  
able present.

Augustine does not agree  
with Aristotle that some animals  
are devoid of memory. He attrib-  
utes memory even to fishes, and  
relates in confirmation of  
this opinion an incident that  
he had observed. There was a  
large fountain filled with fishes.  
People came daily to see them and  
often fed them. The fishes re-  
membered what they received;  
and as soon as they came  
to the fountain they crowded to-  
gether expecting their accustom-  
ed food. But Augustine does not  
suppose that animals have that  
higher memory which is purely



intellectual, although he probably  
failed to see how purely intellec-  
tual and involuntary these so-  
called acts of memory are. Memo-  
ry, with St. Augustine, as in the  
psychology of Plotinus, is a func-  
tion of the soul, not of the body.  
But Aristotle refers it to the  
central sense.\*

What is memory? It is  
thinking of what one knows. All  
the various modifications of the  
soul cannot all be present to  
us at once. There is a difference  
between knowing a thing and

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\* The central sense or sensorium, how-  
ever, according to Augustine is located  
in the brain, not in the heart as in  
Aristotle's psychology.



Thinking of it. The musician, says Augustine knows music but he does not think of it when he is talking about eternity.\* The ideas relating to music are in the soul in a latent state. Augustine anticipates Leibniz in discussing the unconscious involutions of our ~~own~~ ideas; but he speaks especially of their gradual decay, while Leibniz considers the unconscious growth of them. "Many number,"\*\* Augustine says, "are great-

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\* De Trin. I. III. c. VII. See also Boetius, - Psych. de St. Augustin, 2<sup>nd</sup> ed.

\*\* Augustine does not mean to limit what belongs to mathematical truths, but according to <sup>his</sup> psychology the same could be true of anything that one are liable to forget.



nally effaced from memory; nor  
 they remain not an infant un-  
 altered. Indeed what is not found  
 in memory after a year is some-  
 what diminished even after one  
 day. But this diminution is in-  
 perceptible; not it is not strongly  
 impaired; nor it does not sud-  
 denly all vanish the day before  
 the year is up. Hence we may  
 conclude that from the moment  
 it was engraved in memory it  
 began to slip away."\* This loca-  
 tion of unconscious mental  
 changes and unconscious men-  
 tal states is one of the most  
 remarkable features of suggestion  
 psychology. With irresistible logic

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\* De Munica, *op. cit.* Ch. II.





he demonstrates the existence of such states in the following passage from another place:—

"But what when the memory itself loses anything as falls short when we forget—and seek that we may recollect? Where, in the end, do we search, not in the memory itself? And true if one thing is perceived, offered instead of another, we resist it; until what we seek meets us; and when it doth we say 'This is it'; which we should not—unless we recognized it; nor recognize it, unless we remembered it----- For we do not believe it as something new but upon recollection, allow what was claimed to be right.



5

But were it utterly blotted out of the mind, we should not remember it, even when reminded. For we have not as yet utterly forgotten that which we remember ourselves to have forgotten. What, then, we have utterly forgotten, though lost, we cannot even seek after.\* It would not be difficult to find passages in modern psychology that read almost like translations of this chapter, Sargenton's confessions.

Two kinds of memory — sense-memory and intellectual memory are distinguished in the Sargentonian psychology. "The former preserves" and "the

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\* Conf. - I. C. ~~etc.~~ Rough translation.



produces not only the images of visible objects, but also the impressions of sounds, odors and other objects which strike our senses.\* The images are not like the idola of Descartes, but are ideal, formed by the mind from its own essence. Intellectual memory contains our knowledge of the sciences, of literature, and dialectic, and of the questions relating to these subjects.\*\* This memory, unlike the memory of sense, contains not the images of things, but the things themselves. These ideas which the intellectual memory

\* Conf. L. X. c. VIII.

\*\* Conf. L. X. c. IX. pp.



stores up are in a sense in-  
 crete. They never came to us  
 through the senses. They could  
 never have been brought to us, un-  
 less we had already had them in  
 our summaries. "When I learned  
 them I gave not credit to an-  
 other man's mind, but recog-  
 nized them in mine". That's  
 the summary contains the idea  
 of truth and of God.

Aquinas points out  
 us, what has been repeated of  
 Locke and others until it has  
 become a platitude, that we  
 do not remember objects them-  
 selves, but the ideas which we  
 have gained from them. And with  
 his usual subtlety he shows that  
 much of what is ordinarily at-





tributed to perception is really the work of memory.

We see what importance St. Augustine attaches to memory. It is in his view the faculty which preserves the ideas, retaining <sup>not</sup> only to the body, but to the soul, not only to eternal truths, but to the Eternal Being himself ----- This memory, which is peculiar to man, and which animals do not possess - this memory which in a mysterious manner contains in it intelligible realities, is according to the Bishop of Hippo, one of the three great faculties of man, and the origin of the other two. It is from it that intelligence arises, and the will proceeds



68  
from the one to the other and  
unites them. Thus if it is al-  
lowed to compare things hu-  
man with things divine, we  
have in us an image of the  
august Trinity. Memory, in which  
is the matter of knowledge, and  
which is as the place of intelli-  
gible things, offers some re-  
semblance to the Father; the in-  
tellect which is derived from  
and possessed from it is not  
without analogy to the Son; and  
love or will which unites the in-  
telligible or memory to the in-  
tellect has a certain resemblance  
to the Holy Spirit." \* The phenome-

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\* *Dei car.* - *Psych. de St. Augustin.* p. 176. cf. also *De Trin.*  
= II 6 XII XXI XXII and 2 II 8. III and IV.



na of memory were also important to Augustine as weapons against materialism. By memory the soul knows objects of sense when it no longer perceives them, and, moreover, combines the heterogeneous in ways inexplicable by means of a physical substance. And again the soul can form abstract conceptions of space and mathematical truths.

The well-known conditions of a good memory such as acuteness of sensation, order, and repetition, Augustine notices only incidentally. More attention is given to the relation of the will to memory and to the associations of ideas.



Whether we remember  
or not depends upon the will. By  
an act of will we avert the  
memory from sense perceptions,  
as, for example, when we hear  
a speaker and do not no-  
tice what he says, or read  
a page and do not know  
what we have read, or walk  
with our attention upon some-  
thing else. In all these cases  
we perceive, but do not re-  
member our perceptions. So, for  
recollection depends upon the  
will: "As the will applies the  
body (or external object), so it  
applies the memory to the sense,  
and the eye of the mind of  
the thinker to the memory.\*"

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\*De Trin. I. II c. VIII. Pange translation.





This power of the will over memory is, however, limited by the association of ideas. In order to recall anything by a voluntary effort one must remember the general notion of the thing or some associated idea. "For example, I wish to remember what I supped on yesterday, either I have vividly remembered that I did sup, or if not get this, at least I have remembered something about that time itself, if nothing else; at all events I have remembered yesterday and that part of yesterday in which people usually sup, and what supping



is".\* In another place he says that, of a series of ideas the last part is recovered "in the part whereby one had hold".

Many since Augustine have marvelled at the miracle of memory. Some have expressed their admiration more eloquently. "Great is the power of memory," he exclaims, "excessive great I say; a large and boundless chamber; who ever sounded the bottom thereof? But is this a power of mine, and belongs unto my nature; nor do I myself comprehend all that I am! Therefore is the mind too strait to contain

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\* De Trin. 2. II. c. III. Pusey's translation.



itself. And where should that be  
 which it containeth, not of it-  
 self? Is it without and out  
 of it? How then doth it not  
 comprehend itself. A wonderful  
 admiration surprises me, a-  
 mazement seizes me upon this.  
 And when is abroad to admire  
 the heights of mountains, the  
 mighty billows of the sea, the  
 broad tides of rivers, the com-  
 pass of the Ocean, and the cir-  
 cuits of the stars, and pass them-  
 selves by; nor wonder that  
 when I speak of all these things  
 I bid not all them with mine  
 eyes, yet could not have as-  
 sened at them, unless I then ac-  
 tually saw the mountains, bill-  
 ows, rivers, stars, which I had



seen, and that ocean which I believe to be inwardly in my memory, and that, with the vast spaces between, as if I saw them abroad. Yet did not I by seeing draw them in to myself, when with mine eyes I beheld them; nor are they themselves with me, but their images only. And I know by what sense of the body each was impressed upon me."

It is an interesting fact that Augustine noticed the possibility of illusions of memory. Certain rare phenomena—the so-called recollections of Pothuoras and others who were said to have remembered objects perceived in a former state of





existence — he explains in a very modern fashion, except that he attributes <sup>them</sup> chiefly to the agency of evil spirits. "For you must not," he says, "acquiesce in their story who assert that the Samian Pythagoras recollected some things of this kind, which he had experienced when he was previously here in another body; and others get of others, that they experienced something of the same sort in their minds. But it may be conjectured that these were genuine recollections, such as we commonly experience in sleep, when we fancy we remember, as though we had done or seen it, when we never did or saw at all;



and that the minds of these persons, even though awake, were affected in this way at the suggestion of malicious and deceitful spirits, whose care it is to convince or to sow some false belief concerning the changes of souls, in order to deceive men.\* If they truly remembered such things, he argues, such phenomena would not be as rare; but many persons would experience the same.

Perhaps the most-serious criticism of Augustinus' psychology of memory is that he entirely neglects the physiological-side of the subject. He does not

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\* D. Aug. 8. XII. 1.



even notice the relation of memory to states of health or disease, and of youth or age. In one place, however, he states that memory has its seat in one of the three ventricles of the brain, which is situated between that which is the seat of sensation and that which presides <sup>over</sup> locomotion, so that our movements may be co-ordinated.

The critic has also here made that suggestion, which seems to waver in his conception of memory, that he sometimes represented it as the source of all our intellectual activity, combining it among the other facul-

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\* De Sen. et Litt., l. III. c. XVIII.



ties to the Father in the Trinity; that again he seems to limit this faculty to the work of preserving knowledge acquired empirically. Certainly in some passages he seems to make memory contain a kind of innate ideas that may be drawn forth by suggestion.\*

But if Augustine is misinterpreted in this, it must be remembered that he is not writing a psychology and that he was, as Ferraz calls him, a philosopher of transition. "He combats Plato's doctrine of reminiscence, and prepares the way for the innate ideas of Descartes, without positively enough rejecting

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\* *Aug.* I. I. & I. and II.





The former, and without clearly  
enough admitting the latter." \*

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\* *ibid.*, p. cit., p. 22.



## I.

The pathological side of memory seems to have been little noticed by the ancients. Socrates referred to the possibility of illusions of memory in the way already mentioned. Seneca tells of a certain Sabinus who had so bad a memory that he forgot the names of Ulysses, and again of Achilles, and sometimes of Priam, though he knew them as well as we remember our schoolmasters.\* Some remarkable cases of amnesia were reported by the elder Pliny. "Nothing whatever in man," he

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\* Epistolae. 27.



says, "is of so frail a nature as the memory; for it is affected by disease, by injuries and even by fright; being sometimes partially lost and at times entirely so. A man who received a blow from a stone forgot the names of the letters of the alphabet; while, on the other hand, another person, who fell from a very high roof, could not so much as recollect his mother or his relations and neighbors. Another person in consequence of some disease forgot his own servants even; and Messala Corvinus, the orator, lost all recollection of his own name."\*

These cases are good illustrations

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\* Nat. Hist. Lib. Hist. C. 11.



of certain diseases of memory.  
They are not reported with sufficient accuracy and detail to render them of much scientific value. Ancient thinkers appear not to have seen the importance of studying the pathological conditions of memory.





#### IV.

A historical sketch of memory among the ancient Greeks and Romans is complete without some mention of their mnemonic system. The art of mnemonics seems to have been much in vogue among them. There are frequent allusions to this art in the works of Aristotle, Plato and other classic writers. Aristotle is reported by some to have written a work upon mnemonics. Every scholar of the classics is familiar with the story that ascribes the invention of the art to Simonides.

The main principles of the ancient mnemonic systems



according to Cicero and Quintilian were as follows. The thing to be remembered was localized by the imagination in some definite place - say in a room of a real or imaginary house; and, if necessary, a concrete symbol as vivid as possible was associated with it. This method was used by the Romans as an aid in oratory; and it has been said that the phrases, "in the first place", "in the second place", and the like, originated in this ancient practice.

The ancient systems of mnemonics are inferior to the best modern systems that <sup>since</sup> the days of Pick\* have been based up-

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\* Cf. his work "On Memory and The Rational Memory", London, 1872.



on sound psychological principles. But the ancient systems were probably very helpful, "eye-minded" people. The men with remarkable memories, mentioned by Cicero and other ancient writers very likely owed much to mnemonic aids. It is of special psychological interest to consider the ancient mnemonic devices in the light of such studies as those of Galton upon mental imagery, number forms, and the like.\* It is hard to estimate that many of the ancients placed upon the mnemonic art, may, perhaps, fairly be taken as evidence that what

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\* Galton, *Enquiry into Human Faculty*, p. 83 seq.



Gallton calls the faculty of visual  
isation ~~was~~ developed among them.  
Especially some of the Roman  
orators seem to have possessed  
this faculty in a high degree.





## Biographical Note of the Author.

I was born at Dunbarton, N. H. on the 9th of Dec. 1855, and am the youngest son of James and Sarah Jane Burdham. I was educated at the High School at Dunbarton, N. H. in 1875. The next three years I spent in teaching and in study. In 1878 I entered Harvard College and was admitted in the Class of '82. The following year was spent in teaching in the Preparatory Department of Wittenberg College. The next two years were spent at the State University at Potsdam, N. Y., where my work was the teaching of Latin and Rhetoric. In 1882 I entered the Johns Hopkins University. In this university I had as my teachers the following: Philosophy and Natural Science, Professor F. A. Schwarz; Latin and Rhetoric, Professor J. G. Stanley Hall and Dr. Richard T. Ely. My work has been chiefly under the direction of Prof. J. G. Stanley Hall and Dr. Richard T. Ely.

William Henry Burdham.













